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Conservation and Population Status of Freshwater Fishes from Kelekar River, South Sumatra, Indonesia

M. Muslim[1,2], R. Irawan[2], A. Karolina[2], R. Fahleny[2], M. A. Haitami[3], D. Isawpatita[4]
[1] Aquaculture Study Program, Faculty of Agriculture, Universitas Sriwijaya, Indralaya, Indonesia.
[2] Aquatic Resource Management Study Program, Faculty of Fisheries, Universitas Islam Ogan Komering Ilir Kayuagung, Indonesia.
[3] Inland Fisheries Research Center and Fisheries Extension, Palembang, Indonesia
[4] Fisheries Service of Ogan Komering Ilir Regency, Kayuagung, Indonesia

ABSTRACT: This study assessed the conservation and population status of the fish species collected from the Kelekar river. This study was conducted between May 2022 and June 2023. A total of 1.267 fish belonging to 49 species and 19 families were recorded. Cyprinidae was found to be the richest family (18 species) followed by Osphronemidae (5 species), Channidae (4 species), Siluridae (3 species), Bagridae, Claridae, Pangasidae, Pristolepidae (2 species), and others (1 species). The Shannon-Weiner diversity index was 3.547. The Simpson's dominance index was 0.035, and the Evenness index was 0.921. The biodiversity index of the Kelekar river was in the high category. Base on the latest IUCN red list, one species as data deficient, forty-three species as least concern, two species as near threatened, two species as vulnerable, and one species as critically endangered. The IUCN based population status of fish species present in the Kelekar River was unknown (35%), stable (47%), and decreasing (18%).

KEYWORDS: fish diversity; fish genetic, fish resources, fish preservation, inland fishery

INTRODUCTION

Indonesia is the biggest archipelago country in the world. Stretching from Sabang to Merauke, Indonesia has 17.499 islands with a total area of approximately 7.81 million square kilometers. The area of the waters is about 75% of the total area. Its freshwater area (including rivers, reservoirs, and swamps) is 141.690 hectares. One of the rivers in Indonesia is the Kelekar river. The Kelekar River is located in Ogan Ilir Regency, South Sumatra Province. This river is used by local people for daily activities such as household activities, fishing, and also transportation. Some water quality parameters in the Kelekar River are temperature 25-32^{o}C, depth 60 - 400 cm, dissolved oxygen 3.45-6.56 mg.L^{-1}, ammonia 0.002-0.341 mg.L^{-1}, and alkalinity 30-60 mg.L^{-1} (Muslim, 2020). The biodiversity index of Kelekar river was in the medium category. The diversity index was 2.183-2.691, evenness index was 0.764-0.871, and dominance index was 0.045 (Muslim and Syaifudin, 2021).

The Kelekar River is a habitat for various types of fish. Fishes inhabiting rivers are severely affected due to reduced water flow, overfishing, and increased water pollution. The study of biological and ecological aspects of this river is very limited. Several studies have been conducted on parasites in clown loach fish (Robin, 2007), gonadal maturity of snakehead fish (Muslim, 2007), plankton community (Silaen et al., 2011), water quality (Muslim, 2019; Amalia, 2019), DNA coded for striped snakehead and ocellated snakehead fish (Syaifudin et al., 2020), fish diversity (Muslim and Syaifudin, 2021), and river flow characteristics (Fajari and Haki, 2022). Studies on the conservation and population status of fish in the Kelekar River have not been carried out. The purpose of this study was to evaluate the conservation and population status of fish caught in the Kelekar River. The results of this study are beneficial for the government and other stakeholders to design management strategies for aquatic resources in Ogan Ilir Regency.

MATERIAL AND METHOD

A total of three sampling stations on Kelekar River were selected for the present study. Station 1 (Tanjung Pring:3^{o}14'36.2" S 104^{o}38'58.8" E), Station 2 (Tanjung Raya: 3^{o}14'41.0" S 104^{o}39'28.4" E), and Station 3 (Indralaya Mulya: 3^{o}23'89.8" S 104^{o}64'94.8" E) (Figure 1). Sampling occurred over the period May 2022 to June 2023. Fishes were caught with traditional fishing gears such as empang (fish barrier), arat waring (seine net), jaring angkat (lift net), jaring insang (gill net). A digital camera was used to capture photos of different fish species. The collected fish samples were identified by their morphometric and meristic

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characteristics using the keys of Kottelat et al., (1993) and Saanin (1984). The global conservation, population trend, and last assessment were determined following the database of the IUCN Red List of threatened species. version 2022-1. (https://www.iucnredlist.org/). The valid scientific and common names of the identified fish species were ensured by checking the database of the fish (https://www.fishbase.se/).

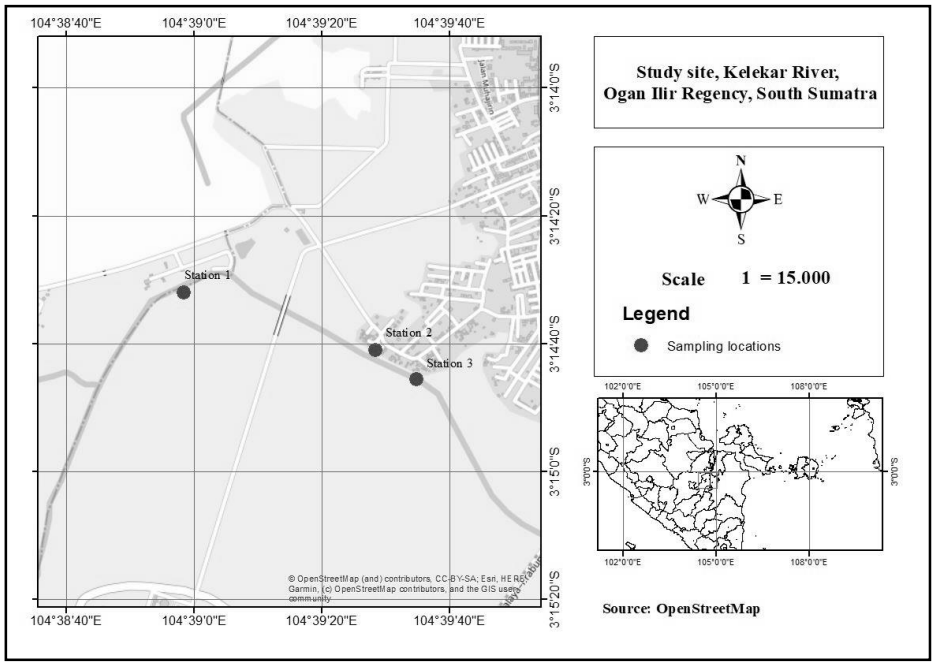

Figure 1: Map of sampling site in the Kelekar river, Ogan Ilir Regency, Indonesia

The collected data were analysed using by Microsoft Excel 2010. The fish diversity was calculated using the Shannon-Wiener index (Sweke et al., 2013):

$$H' = \sum_{i=1}^{S} Pi.\ln Pi$$

Where S is the number of species in the sample, and Pi is the relative importance values obtained as the squared ratio of the important values of S individual value for all species to N the total importance.

Determination of criteria:
H' < 1.0 (low),
H' = 1.0 – 3.0 (medium), and
H' > 3.0 (high)
The evenness index was calculated by a formula Magurran (1988):

$$E = \frac{H'}{H'max}$$

Where, H' is Shannon-Wiener diversity index, E is evenness index (value 0-1), and H' *max* is maximum diversity index.
Determination of criteria:
E < 0.4 (low),
E = 0.4-0.6 (medium), and
E > 0.6 (high)
The dominant fish species was determined using the following formula (Davari et al., 2011):

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$$C = \sum_{i=1}^{S} (Pi)^2$$

Where, C is Simpson's dominance index, is the relative importance values obtained as the squared ratio of the important value, is the individual value for all species.

RESULT AND DISCUSSION

A total of forty-nine species under nineteen families were collected from the three sampling stations. Among the recorded species, eighteen species of fishes were represented from the Cyprinidae family, five from Osphronemidae, four from Channidae, three from Siluridae, two species each belonged to Bagridae, Claridae, Pangasidae, Pristolepidae, and one each representative species from Ambassidae, Anabantidae, Aplocheilidae, Datnioididae, Helostomatidae, Eleotridae, Mastocembelidae, Nandidae, Notopteridae, Synbranchidae, and Tetraodontidae are depicted in Figure 2. Priono et al. (2001); Muslim and Syaifudin (2021) reported that the Cyprinidae family was part of the major fish composition in the Kelekar River. A similar trend was observed in the present findings. Base on the latest IUCN red list, one species (2%) as data deficient, forty-three species (88%) as least concern, two species (4%) as near threatened, two species (4%) as vulnerable, and one species (2%) as critically endangered (Figure 3). The population trend of fishes in the Kelekar river was unknown (35%), stable (47%), and decreasing (18%) (Figure 4). A list of existing fish species with their family name, species, conservation and population status, and last assessed are presented in Table 1 and Tabel 2.

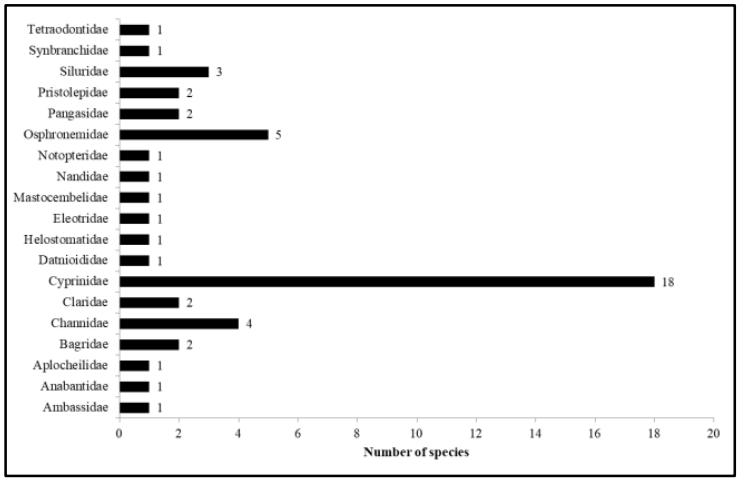

Figure 2: Family-wise species composition of fishes from Kelekar river, Ogan Ilir Regency, Indonesia

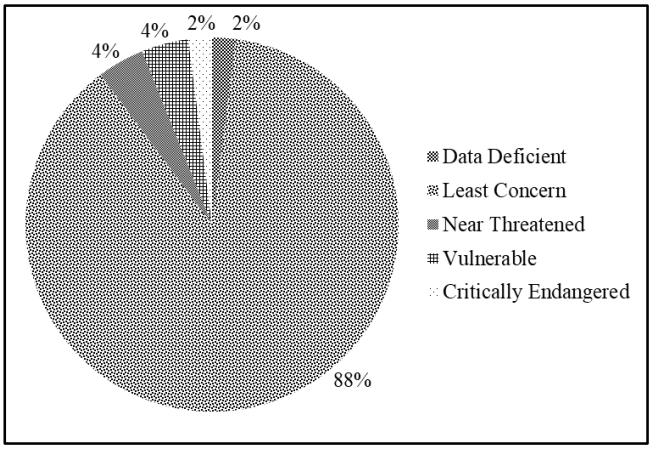

Figure 3: IUCN Red List status of fishes in Kelekar river, Ogan Ilir Regency, Indonesia

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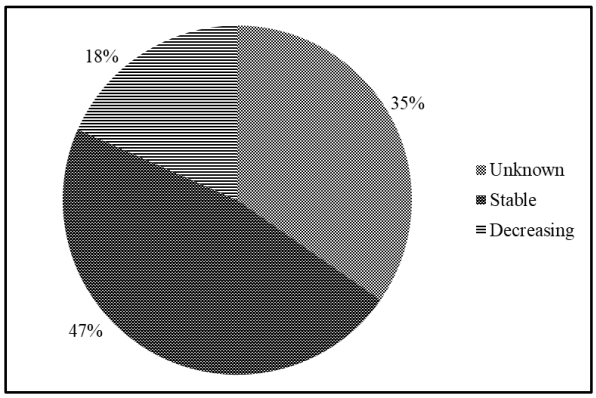

Figure 4: The population status of fishes in Kelekar River, Ogan Ilir Regency, Indonesia

Table 1: IUCN red list status of fishes caught in Kelekar River, Ogan Ilir Regency, Indonesia

No	Family	Species	IUCN status (var2022-1)	Last Assessed (dd/mm/yy)
1	Ambassidae	*Parambassis wolffii* (Bleeker, 1850)	LC	20/11/2019
2	Anabantidae	*Anabas testudineus* (Bloch, 1792)	LC	10/08/2019
3	Aplocheilidae	*Oryzias javanicus* (Bleeker, 1854)	LC	16/11/2018
4	Bagridae	*Hemibagrus nemurus* (Valenciennes, 1840)	LC	01/09/2018
5	Bagridae	*Mystus nigriceps* (Valenciennes, 1840)	LC	08/05/2019
6	Channidae	*Channa pleuropthalma* (Bleeker, 1851)	NT	26/11/2019
7	Channidae	*Channa striata* (Bloch, 1793)	LC	11/08/2019
8	Channidae	*Channa lucius* (Cuvier, 1831)	LC	26/11/2019
9	Channidae	*Channa micropeltes* (Cuvier, 1831)	LC	03/12/2019
10	Claridae	*Clarias batrachus* (Linnaeus, 1758)	LC	16/01/2019
11	Claridae	*Clarias leiacanthus* (Bleeker, 1851)	LC	01/09/2018
12	Cyprinidae	*Desmopuntius johorensis* (Duncker, 1904)	LC	09/08/2019
13	Cyprinidae	*Puntioplites bulu* (Bleeker, 1851)	LC	14/01/2019
14	Cyprinidae	*Osteochilus hasselti* (Valenciennes, 1842)	LC	18/04/2020
15	Cyprinidae	*Osteochilus vittatus* (Valenciennes, 1842)	LC	18/04/2020
16	Cyprinidae	*Osteochilus schlegelii* (Bleeker, 1851)	DD	01/02/2019
17	Cyprinidae	*Cycloheilichthys apogan* (Valenciennes, 1842)	LC	13/01/2019
18	Cyprinidae	*Hampala macrolepidota* (Kuhl & Van Hasselt, 1823)	LC	02/04/2020
19	Cyprinidae	*Barbonymus schwanenfeldii* (Bleeker, 1854)	LC	09/01/2019
20	Cyprinidae	*Rasbora argyrotaenia* (Bleeker, 1849)	LC	28/08/2020
21	Cyprinidae	*Rasbora trilineata* (Steindachner, 1870)	LC	09/01/2019
22	Cyprinidae	*Rasbora sumatrana* (Bleeker, 1852)	DD	01/02/2019
23	Cyprinidae	*Labeo chrysophekadion* (Bleeker, 1849)	LC	03/04/2020
24	Cyprinidae	*Balantiocheilos melanopterus* (Bleeker, 1850)	VU	07/02/2019
25	Cyprinidae	*Puntigrus tetrazona* (Bleeker, 1855)	LC	13/04/2020
26	Cyprinidae	*Barbichthys laevis* (Valenciennes, 1842)	LC	09/01/2019
27	Cyprinidae	*Leptobarbus hoevenii* (Bleeker, 1851)	LC	06/04/2020
28	Cyprinidae	*Luciosoma trinema* (Bleeker, 1852)	LC	08/04/2020
29	Cyprinidae	*Parachela oxygastroides* (Bleeker, 1852)	LC	10/04/2020
30	Datnioididae	*Datnioides pulcher* (Kottelat, 1998)	CE	21/02/2011

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31	Helostomatidae	*Helostoma temmincki* (Cuvier, 1829)	LC	19/09/2019
32	Eleotridae	*Oxyeleotris marmorata* (Bleeker, 1852)	LC	24/08/2018
33	Mastocembelidae	*Mastacembelus erythrotaenia* (Bleeker, 1850)	LC	12/12/2019
34	Nandidae	*Nandus nebulosus* (Gray, 1835)	LC	08/06/2018
35	Notopteridae	*Notopterus notopterus* (Pallas, 1769)	LC	30/08/2019
36	Osphronemidae	*Trichopodus trichopterus* (Pallas, 1770)	LC	21/01/2019
37	Osphronemidae	*Trichopodus leerii* (Bleeker, 1852)	NT	21/01/2019
38	Osphronemidae	*Trichopodus pectoralis* (Regan, 1910)	LC	22/02/2012
39	Osphronemidae	*Belontia hasselti* (Valenciennes, 1831)	LC	04/12/2018
40	Osphronemidae	*Osphronemus goramy* (Lacepède, 1801)	LC	21/01/2019
41	Pangasidae	*Pangasius pangasius* (Hamilton, 1822)	LC	13/10/2009
42	Pangasidae	*Pangasius polyuranodon* (Bleeker, 1852)	LC	07/06/2019
43	Pristolepidae	*Pristolepis grootii* (Bleeker, 1852)	LC	08/06/2019
44	Pristolepidae	*Pristolepis fasciata* (Bleeker, 1852)	LC	02/08/2018
45	Siluridae	*Wallago attu* (Bloch & Schneider, 1801)	VU	12/08/2019
46	Siluridae	*Kryptopterus lais* (Bleeker, 1851)	LC	27/05/2019
47	Siluridae	*Kryptopterus palembangensis* (Bleeker, 1852)	LC	27/05/2019
48	Synbranchidae	*Monopterus albus* (Zuiew, 1793)	LC	10/11/2020
49	Tetraodontidae	*Tetraodon palembangensis* (Bleeker, 1851)	LC	06/01/2020

LC(Least Concern); VU(Vulnerable); NT(Near Threatened); CE (Critically Endangered)

Table 2: Population status of fishes caught in Kelekar River, Ogan Ilir Regency, Indonesia

No	Family	Species	Population status	Last assessed (dd/mm/yy)
1	Ambassidae	*Parambassis wolffii* (Bleeker, 1850)	Stable	20/11/2019
2	Anabantidae	*Anabas testudineus* (Bloch, 1792)	Stable	10/08/2019
3	Aplocheilidae	*Oryzias javanicus* (Bleeker, 1854)	Stable	16/11/2018
4	Bagridae	*Hemibagrus nemurus* (Valenciennes, 1840)	Unknown	01/09/2018
5	Bagridae	*Mystus nigriceps* (Valenciennes, 1840)	Unknown	08/05/2019
6	Channidae	*Channa pleuropthalma* (Bleeker, 1851)	Decreasing	26/11/2019
7	Channidae	*Channa striata* (Bloch, 1793)	Stable	11/08/2019
8	Channidae	*Channa lucius* (Cuvier, 1831)	Stable	26/11/2019
9	Channidae	*Channa micropeltes* (Cuvier, 1831)	Stable	03/12/2019
10	Claridae	*Clarias batrachus* (Linnaeus, 1758)	Stable	16/01/2019
11	Claridae	*Clarias leiacanthus* (Bleeker, 1851)	Stable	01/09/2018
12	Cyprinidae	*Desmopuntius johorensis* (Duncker, 1904)	Stable	09/08/2019
13	Cyprinidae	*Puntioplites bulu* (Bleeker, 1851)	Unknown	14/01/2019
14	Cyprinidae	*Osteochilus hasselti* (Valenciennes, 1842)	Stable	18/04/2020
15	Cyprinidae	*Osteochilus vittatus* (Valenciennes, 1842)	Stable	18/04/2020
16	Cyprinidae	*Osteochilus schlegelii* (Bleeker, 1851)	Decreasing	01/02/2019
17	Cyprinidae	*Cycloheilichthys apogan* (Valenciennes, 1842)	Unknown	13/01/2019
18	Cyprinidae	*Hampala macrolepidota* (Kuhl & Van Hasselt, 1823)	Unknown	02/04/2020
19	Cyprinidae	*Barbonymus schwanenfeldii* (Bleeker, 1854)	Unknown	09/01/2019
20	Cyprinidae	*Rasbora argyrotaenia* (Bleeker, 1849)	Stable	28/08/2020
21	Cyprinidae	*Rasbora trilineata* (Steindachner, 1870)	Stable	09/01/2019
22	Cyprinidae	*Rasbora sumatrana* (Bleeker, 1852)	Unknown	01/02/2019

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23	Cyprinidae	*Labeo chrysophekadion* (Bleeker, 1849)	Unknown	03/04/2020
24	Cyprinidae	*Balantiocheilos melanopterus* (Bleeker, 1850)	Decreasing	07/02/2019
25	Cyprinidae	*Puntigrus tetrazona* (Bleeker, 1855)	Stable	13/04/2020
26	Cyprinidae	*Barbichthys laevis* (Valenciennes, 1842)	Unknown	09/01/2019
27	Cyprinidae	*Leptobarbus hoevenii* (Bleeker, 1851)	Unknown	06/04/2020
28	Cyprinidae	*Luciosoma trinema* (Bleeker, 1852)	Stable	08/04/2020
29	Cyprinidae	*Parachela oxygastroides* (Bleeker, 1852)	Unknown	10/04/2020
30	Datnioididae	*Datnioides pulcher* (Kottelat, 1998)	Decreasing	21/02/2011
31	Helostomatidae	*Helostoma temmincki* (Cuvier, 1829)	Stable	19/09/2019
32	Eleotridae	*Oxyeleotris marmorata* (Bleeker, 1852)	Unknown	24/08/2018
33	Mastocembelidae	*Mastacembelus erythrotaenia* (Bleeker, 1850)	Decreasing	12/12/2019
34	Nandidae	*Nandus nebulosus* (Gray, 1835)	Stable	08/06/2018
35	Notopteridae	*Notopterus notopterus* (Pallas, 1769)	Stable	30/08/2019
36	Osphronemidae	*Trichopodus trichopterus* (Pallas, 1770)	Unknown	21/01/2019
37	Osphronemidae	*Trichopodus leerii* (Bleeker, 1852)	Decreasing	21/01/2019
38	Osphronemidae	*Trichopodus pectoralis* (Regan, 1910)	Decreasing	22/02/2012
39	Osphronemidae	*Belontia hasselti* (Valenciennes, 1831)	Unknown	04/12/2018
40	Osphronemidae	*Osphronemus goramy* (Lacepède, 1801)	Unknown	21/01/2019
41	Pangasidae	*Pangasius pangasius* (Hamilton, 1822)	Decreasing	13/10/2009
42	Pangasidae	*Pangasius polyuranodon* (Bleeker, 1852)	Stable	07/06/2019
43	Pristolepidae	*Pristolepis grootii* (Bleeker, 1852)	Stable	08/06/2019
44	Pristolepidae	*Pristolepis fasciata* (Bleeker, 1852)	Stable	02/08/2018
45	Siluridae	*Wallago attu* (Bloch & Schneider, 1801)	Decreasing	12/08/2019
46	Siluridae	*Kryptopterus lais* (Bleeker, 1851)	Stable	27/05/2019
47	Siluridae	*Kryptopterus palembangensis* (Bleeker, 1852)	Stable	27/05/2019
48	Synbranchidae	*Monopterus albus* (Zuiew, 1793)	Unknown	10/11/2020
49	Tetraodontidae	*Tetraodon palembangensis* (Bleeker, 1851)	Unknown	06/01/2020

This study shows that there are various types of fish in the Kelekar river. A total of 1.267 identified individuals can be classified into 19 families, 36 genera, and 49 species. The Cyprinidae consists of 14 genera, Osphronemidae (3), each Siluridae and Bagridae (2), and others (1). The Cyprinidae consists of 18 species, Osphronemidae (5), Channidae (4), Siluridae (3), Claridae, Bagridae, Pangasidae, Pristolepidae (2), and others (1). Five hundred four (504) individuals were dominated by members of the Cyprinidae, followed by the Osphronemidae (151), Channidae (120), Pristolepidae (109), Anabantidae (79), Helostomatidae (68), Ambassidae (48), Siluridae (44), Bagridae (39), Claridae (28), Pangasidae (18), Notopteridae (13), Eleotridae (11), Synbranchidae (9), Nandidae (8), Tetraodontidae (5), Aplocheilidae (5), Mastocembelidae (4), and Datnioididae (3). The Shannon-Weiner diversity index was 3.532. The Simpson's dominance index was 0.036, and the Evenness index was 0.917 (Table 3). The biodiversity index of the Kelekar River was in the high category.

Table 3: Shannon-Wiener diversity index (H'), Simpson's dominance index (C), and evenness index (E) fish species in Kelekar River, Ogan Ilir Regency, Indonesia

No	Family	Number of Genera	Number of Species	Number of Individuals	H'	C	E
1	Ambassidae	1	1	48			
2	Anabantidae	1	1	79			
3	Aplocheilidae	1	1	5			
4	Bagridae	2	2	39			
5	Channidae	1	4	120			

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6	Claridae	1	2	28			
7	Cyprinidae	14	18	504			
8	Datnioididae	1	1	3			
9	Helostomatidae	1	1	68			
10	Eleotridae	1	1	11			
11	Mastocembelidae	1	1	4			
12	Nandidae	1	1	8			
13	Notopteridae	1	1	13			
14	Osphronemidae	3	5	151			
15	Pangasidae	1	2	18			
16	Pristolepidae	1	2	109			
17	Siluridae	2	3	44			
18	Synbranchidae	1	1	9			
19	Tetraodontidae	1	1	5			
Total	19	36	49	1.267	3.547	0.035	0.921

The eleven most common species were *Anabas testudineus* (79 individuals, C= 0.00389), *Rasbora sumatrana* (79, C=0.00389), followed by *Rasbora argyrotaenia* (74, C= 0.00341), *Helostoma temmincki* (68, C= 0.00288), *Rasbora trilineata* (61, C= 0.00232), *Puntius johorensis* (60, C= 0.00224), *Pristolepis grootii* (60, C= 0.00224), *Belontia haselti* (49, C= 0.00150), *Pristolepis fasciata* (49, C= 0.00150), *Parambassis wolffii* (48, C= 0.00144), and *Channa striata* (45, C= 0.00126) (Figure 5).

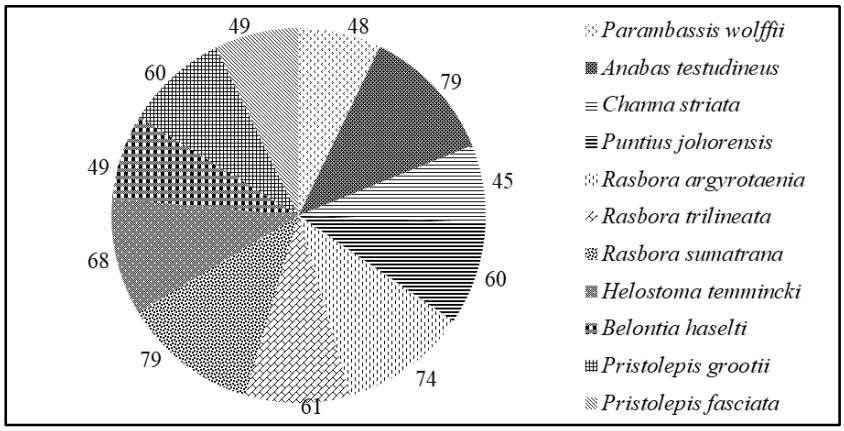

Figure 5: Eleven dominant species found in the Kelekar River, Ogan Ilir Regency, Indonesia

Fish are a richly diverse group of chordates, with more than 33,500 species, more than all non-fish vertebrates combined. Freshwater fish comprise over 16,000 species distributed worldwide (Miranda and Miqueleiz, 2021). They are also one of the most endangered groups of vertebrates, particularly vulnerable to human alterations such as species introduction, overexploitation, population declines, degradation of continental waterways, and climate change. However, knowledge of the ecology and conservation status of freshwater fishes is lower than that of terrestrial groups due to a bias in conservation research towards charismatic species. The diversity of freshwater fish has been severely threatened by human activities in recent decades, making the conservation of freshwater fish and their ecosystems an urgent priority (Cao et al., 2023). The conservation of fish and their habitats has received very little attention compared to other vertebrates (Maitland, 1995).

More than 1.2 million species have been described as existing on Earth, and many more are still unidentified (Mora et al., 2011). According to De Vos et al., (2015), the rate of extinction of species is 1000 times quicker than it was in the fossil record, and the sixth mass extinction (Ceballos et al., 2017) is one of the most significant problems of the 21st century. The primary drivers of the excessive biodiversity loss in ecosystems are human-caused factors such species invasions, habitat modification, and climate change

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(Dudgeon et al., 2006; Dirzo et al., 2014; Reid et al., 2019). Inland waters are among the most impacted ecosystems (Strayer and Dudgeon, 2010; Collen et al., 2014).

CONCLUSIONS

In the present study, forty-nine species of fish were recorded. The biodiversity index of the Kelekar river was in the high category. As per the recent IUCN Red List, the conservation status of the fishes showed one species critically endangered, two species vulnerable, two species near threatened, forty-three species least concern, and one species data deficient. The population trend of fish was unknown (35%), stable (47%), and decreasing (18%).

REFERENCES

1. Amalia, R.H.T. 2019. Water quality analysis of Kelekar River in Burai Village Tanjung Batu subdistrict, Ogan Ilir District to identify the toxic effects caused. *Jurnal Biota*, *5*(1), 48-54.
2. Cao, L., Shao, W.H., Yi, W.J., and Zhang, E. 2023. A review of conservation status of freshwater fish diversity in China. *Journal of Fish Biology*. doi: 10.1111/jfb.15606. Epub ahead of print. PMID: 37927158.
3. Ceballos, G., Ehrlich, P. R., and Dirzo, R. 2017. Biological annihilation via the ongoing sixth mass extinction signaled by vertebrate population losses and declines. *Proceedings of the National Academy of Sciences*, *114*(30), E6089-E6096.
4. Collen, B., Whitton, F., Dyer, E. E., Baillie, J. E., Cumberlidge, N., Darwall, W. R., ... and Böhm, M. 2014. Global patterns of freshwater species diversity, threat and endemism. *Global Ecology and Biogeography*, *23*(1), 40-51.
5. Davari, N., Jouri, M. H., and Ariapour, A. 2011. Comparison of measurement indices of diversity, richness, dominance, and evenness in rangeland ecosystem (case study: Jvaherdeh-ramesar). *Journal of Rangeland Science*, 2, 389–398.
6. De Vos, J. M., Joppa, L. N., Gittleman, J. L., Stephens, P. R., and Pimm, S. L. 2015. Estimating the normal background rate of species extinction. *Conservation Biology*, *29*(2), 452-462.
7. Dirzo, R., Young, H.S., Galetti, M., Ceballos, G., Isaac, N.J., and Collen, B. 2014. Defaunation in the Anthropocene. *Science*, *345*(6195), 401-406.
8. Dudgeon, D., Arthington, A. H., Gessner, M. O., Kawabata, Z. I., Knowler, D. J., Lévêque, C., ... and Sullivan, C. A. 2006. Freshwater biodiversity: importance, threats, status and conservation challenges. *Biological Reviews*, *81*(2), 163-182.
9. Fajari, M.R., and Haki, H. 2022. Analisis karakteristik aliran sungai Kelekar di Desa Muara Penimbung Indralaya, Ogan Ilir. (In Indonesian). Skripsi, Universitas Sriwijaya. Indralaya, Indonesia.
10. Kottelat, M., Whitten, A.J., Kartikasari, S.N, and Wirjoatmodjo, S. 1993. Freshwater fishes of western Indonesia and Sulawesi. Periplus Ed. Jakarta. Indonesia.
11. Magurran, A.E. 1988. Ecological Diversity and Its Measurements, Princeton, NJ: Princeton University Press. https://doi.org/10.1007/978-94-015-7358-0
12. Maitland, P.S. 1995. The conservation of freshwater fish: past and present experience. *Biological Conservation*, 72(2), 259-270.
13. Miranda, R., and Miqueleiz, I. 2021. Ecology and conservation of freshwater fishes biodiversity: We need more knowledge to develop conservation strategies. *Water*, *13*(14), 1929.
14. Mora, C., Tittensor, D. P., Adl, S., Simpson, A. G., and Worm, B. 2011. How many species are there on Earth and in the ocean?. *PLoS Biology*, *9*(8), e1001127.
15. Muslim, M. 2007. Tingkat kematangan gonad ikan gabus (*Channa striatus*) di rawa sekitar Sungai Kelekar. *Agria*. 3(2), 25-27.
16. Muslim, M. 2020. Water quality of fishing location of sepatung fish (*Pristolepis grootii*) at Kelekar River, Ogan Ilir Regency of South Sumatera. *Aquasains*. 8(2),809-814.
17. Muslim, M., and Syaifudin, M. 2022. Biodiversity of Freshwater Fish in Kelekar Floodplain Ogan Ilir Regency in Indonesia. *Journal of Tropical Biodiversity and Biotechnology*, 7(1), 67494.
18. Reid, A. J., Carlson, A. K., Creed, I. F., Eliason, E. J., Gell, P. A., Johnson, P. T., ... and Cooke, S. J. 2019. Emerging threats and persistent conservation challenges for freshwater biodiversity. *Biological Reviews*, *94*(3), 849-873.

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19. Robin, R. 2007. Inventarisasi parasit pada ikan hias botia (*Botia macracanthus*) di Sungai Kelekar, Kabupaten Ogan Ilir, Provinsi Sumatera Selatan. *Akuatik: Jurnal Sumberdaya Perairan*, 1(2) 1-7.
20. Saanin, H. 1984. Taksonomi dan kunci identifikasi ikan jilid 1 dan 2. Bina Cipta. Jakarta. Indonesia.
21. Silaen, A.R., Hanafiah, Z., and Junaidi, E. 2011. Evaluasi komunitas plankton di perairan hilir sungai Kelekar Kecamatan Inderalaya Kabupaten Ogan Ilir. Skripsi, Universitas Sriwijaya. Indralaya, Indonesia.
22. Strayer, D. L., and Dudgeon, D. 2010. Freshwater biodiversity conservation: recent progress and future challenges. *Journal of the North American Benthological Society*, *29*(1), 344-358.
23. Sweke, E.A., Assam, J.M., Matsuishi, T., and Chande, A.I. 2013. Fish diversity and abundance of Lake Tanganyika: Comparison between protected area (Mahale Mountains National Park) and unprotected areas. *International Journal of Biodiversity*, (3), 516-522.
24. Syaifudin, M., Wijayanti, M., Dwinanti, S.H., Muslim, M., Mahendra, M., and Marliana, S. 2020. DNA barcodes and phylogenetics of striped snakehead and ocellated snakehead fish from South Sumatra, Indonesia. *Biodiversitas Journal of Biological Diversity*, 21(3), 1227-1235.

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